

Institute for Computational and Applied Mechanics (ICAM)

NASA LANGLEY RESEARCH CENTER HBCU/OMU PROGRAM:
1990 STUDENT SUPPORT SURVEY SUMMARY REPORT

by

R. L. Yang and S. N. Tiwari



ICAM

ODU/ICAM Report 91-101
April 1991

Old Dominion University
Norfolk, Virginia 23529-0247

FOREWORD

This survey was conducted during the calendar year 1990 in cooperation with selected HBCU/OMU's as a part of the ICAM Research and Education Program. The program was supported by the NASA Langley Research Center through the ICAM Program in Aeronautics, Grant NAG-1-363. The grant was monitored by Dr. Samuel E. Massenberg, University Affairs Officer, Mail Stop 105A, NASA Langley Research Center, Hampton, Virginia 23665-5225.

TABLE OF CONTENTS

STUDENT SUPPORT SURVEY	1
INSTITUTIONS SURVEYED	2
CLASSIFICATION DISTRIBUTION	3
TARGET DEGREE DISTRIBUTION	4
Bachelors Degree	5
Masters Degree	5
Ph.D.	6
GRADE POINT AVERAGE DISTRIBUTION	7
ETHNIC DISTRIBUTION	8
NASA CENTER INTERACTION	9
SUMMARY	10
Appendix A	11
Appendix B	13

STUDENT SUPPORT SURVEY SUMMARY REPORT

AY 1990

During Fiscal Year 1990, the NASA Langley Research Center (LaRC) awarded approximately \$39 million in grants, cooperative agreements, and contracts to institutions of higher education. Of this amount, \$4.6 million (12%) was awarded to principal investigators (P.I.'s) at Historically Black Colleges and Universities (HBCU's) and Other Minority Universities (OMU's). Under the auspices of the HBCU/OMU Program, supported by NASA Headquarters and LaRC, 52 research projects were funded across the broad disciplines of materials, electronics, aeronautics, and space.

An explicit goal of the HBCU/OMU Program is to increase the number of minority students in science, engineering, and technology. To meet this goal LaRC encourages P.I.'s to provide research scholarships and fellowships to high-caliber students at their institutions. In mid-October, the LaRC University Affairs Office conducted a survey of its active research projects for the purpose of identifying students who are being supported through the LaRC's HBCU/OMU Program. The survey instrument was mailed to 34 P.I.'s with a return rate of 100% (Appendix A). The P.I.'s surveyed represent 13 HBCU's and 3 OMU'S.

As a result of this survey it has been determined that 159 undergraduate and graduate students are receiving support through the HBCU/OMU program. Of these students 80 (51%) are female and 79 (49%) are male. One hundred six (67%) are seeking baccalaureate degrees, forty-nine (31%) advanced degrees, and four (3%) terminal degrees.

As a result of this survey a new instrument has been designed to more completely capture progress being made under the HBCU/OMU program (Appendix B). This form includes additional data elements and will further clarify student support.

INSTITUTIONS SURVEYED

Listed below are the HBCU's that were surveyed for the purposes of compiling this report:

Central State University
Clark Atlanta University
Hampton University
Howard University
Jackson State University
NC A&T State University
Norfolk State University
South Carolina State College
Southern University, Baton Rouge
Spelman College
Tennessee State University
Tuskegee University
VA State University

OMU's surveyed are as follows:

City College NY
New Mexico Highlands University
University Maryland, Baltimore County

CLASSIFICATION DISTRIBUTION

Of the 80 female students supported through the HBCU/OMU program, 24 (30%), or the majority, are in their senior year of study. In comparison, only 13 (17%) of the males are in their senior year. However, of the 53 students in graduate school only 21 (26%) are female while 33 (42%) are male (Figure 1).

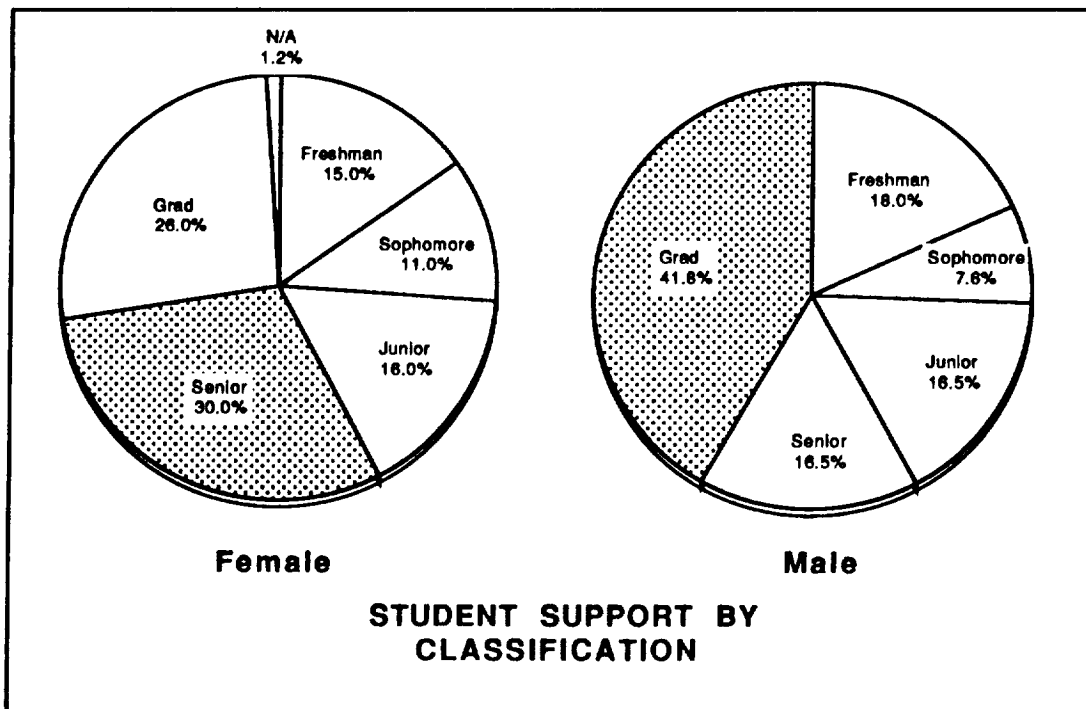


Figure 1

<u>Classification</u>	<u>Female (%)</u>	<u>Male (%)</u>
Freshman	12 (15)	14 (18)
Sophomore	9 (11)	6 (7.6)
Junior	13 (16)	13 (16.5)
Senior	24 (30)	13 (16.5)
Graduate Student	21 (26)	33 (41.8)
<u>Not specified</u>	<u>1 (1.2)</u>	<u>0 (0.0)</u>
TOTAL	80	79

TARGET DEGREE DISTRIBUTION

Of the 80 female students supported, 60 (75%) are working towards baccalaureate degrees, 19 (24%) towards masters degrees, and 1 (1%) towards a doctorate degree. In comparison, of the 79 males supported 46 (58%) are studying towards baccalaureate degrees, 30 (38%) towards masters degrees, and 3 (4%) towards doctorate degrees.

At the baccalaureate level the majority of the females (17%) are majoring in mathematics, while the most reported major for the males (22%) was computer science. Of the 49 students earning masters degrees 4 (21%) of the females and 15 (50%) of the males are in physics, and at the doctorate level 1 (1%) female and 3 (4%) males are in this discipline (Figure 2).

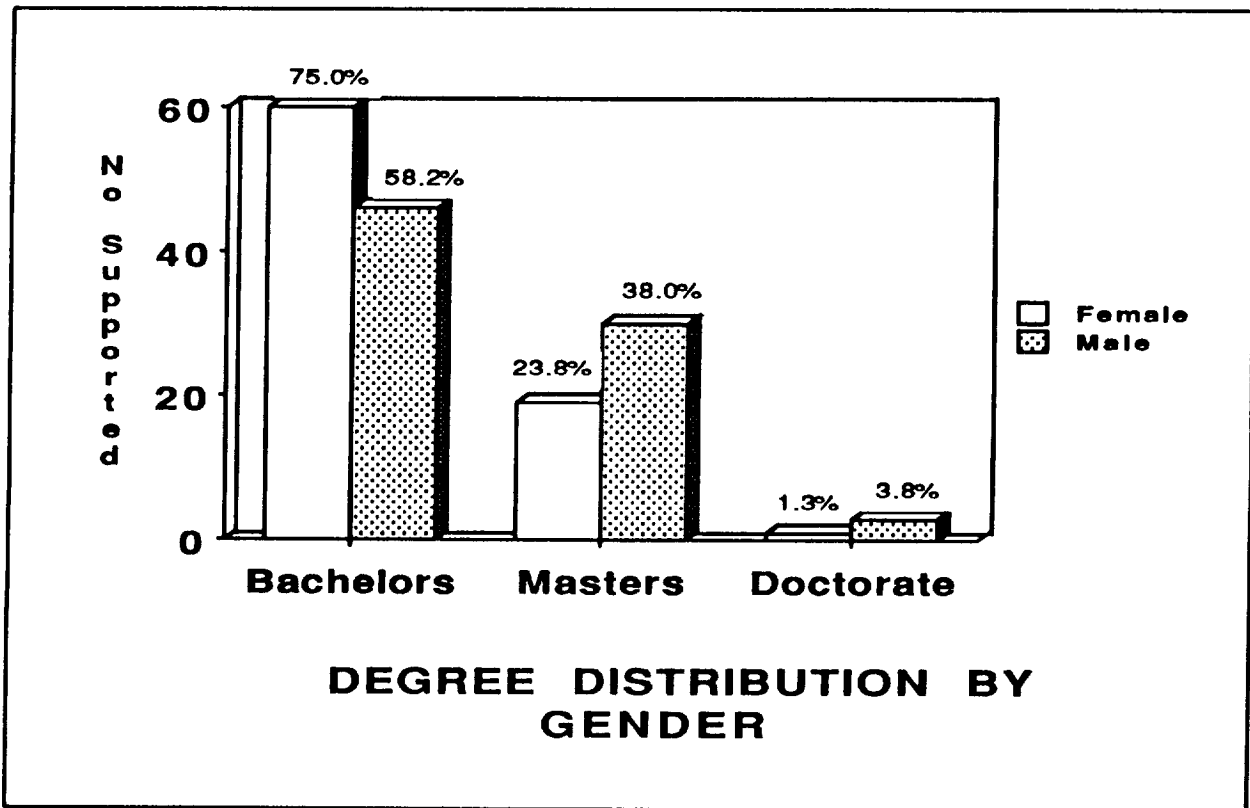


Figure 2

Bachelors Degree

<u>Major</u>	<u>Female (%)</u>	<u>Male (%)</u>
Airway Science	1	2
Architectural Engineering	1	0
Biology	2	1
Chemical Engineering	6	4
Chemistry	5	1
Civil Engineering	0	1
Computer Science	8	10 (21.7)
Electrical Engineering	7	1
Engineering	2	5
Engineering Physics	1	0
Industrial Engineering	1	0
Lab Animal Science	3	0
Landscape Architecture	0	3
Life Science	3	0
Manufacturing Technology	3	1
Manufacturing Engineering	0	0
Manufacturing Systems	3	2
Mathematics	10 (16.7)	3
Mechanical Engineering	1	1
Microbiology	0	1
Physics	3	9
<u>Pre-med</u>	<u>0</u>	<u>1</u>
TOTAL B.S.	60	46

Masters Degree

<u>Major</u>	<u>Female (%)</u>	<u>Male (%)</u>
Applied Mathematics	3	0
Biology	1	0
Chemistry	2	1
Computer Hardware	0	1
Computer Science	0	1
Electrical Engineering	1	9
Engineering	0	1
Industrial Engineering	2	1
Life Science	1	0
M.B.A.	0	1

Masters Degree (cont.)

<u>Major</u>	<u>Female (%)</u>	<u>Male (%)</u>
Manufacturing Technology	1	0
Manufacturing Engineering	1	0
Mathematics	2	0
Mechanical Engineering	1	0
Microbiology	0	0
<u>Physics</u>	<u>4 (21.1)</u>	<u>15 (50)</u>
TOTAL M.S.	19	30

Ph.D.

<u>Major</u>	<u>Female</u>	<u>Male</u>
Applied Mathematics	0	1
<u>Physics</u>	<u>1</u>	<u>2</u>
TOTAL Ph.D.	1	3

GRADE POINT AVERAGE DISTRIBUTION

The average of the Grade Point Averages (G.P.A.) reported for the females was a very respectable 3.37, on a 4.00 scale. For the males in the survey, the average of their G.P.A.'s was 3.28 (Figure 3).

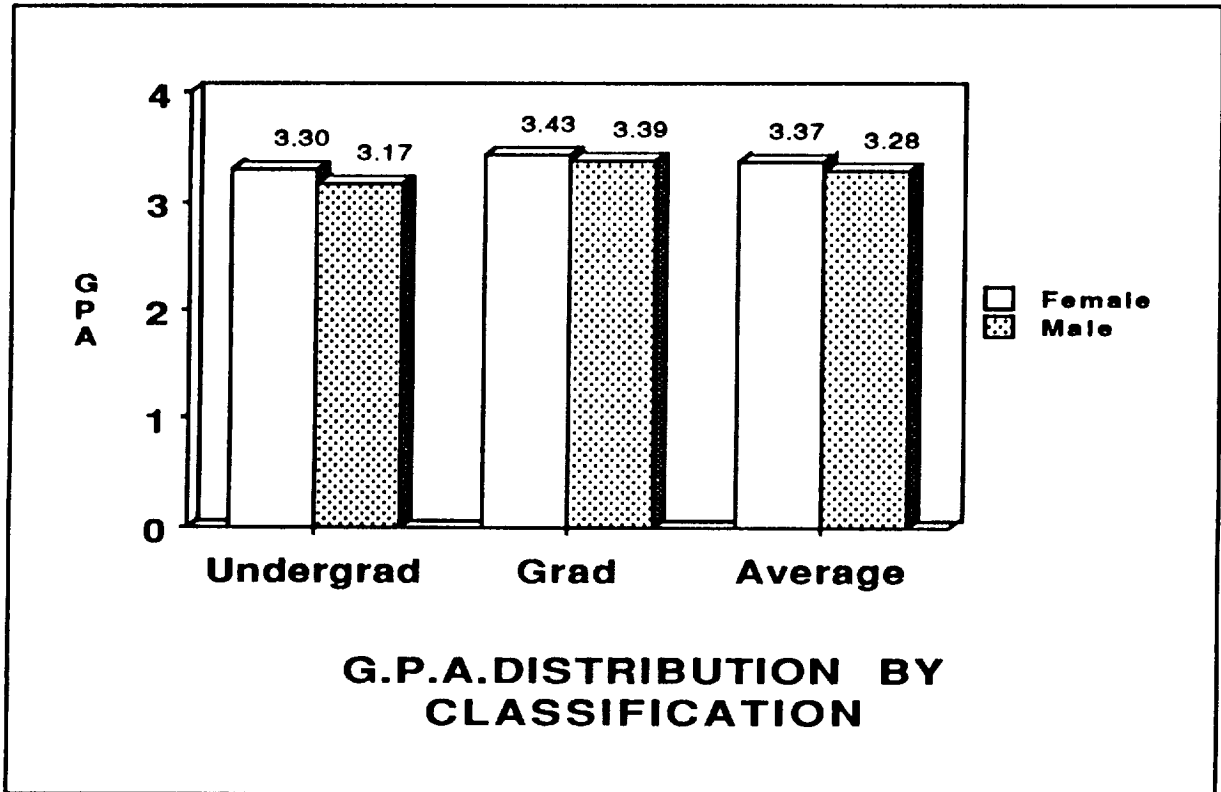


Figure 3

<u>Average GPA</u>	<u>Female</u>	<u>Male</u>
Undergraduate	3.30	3.17
<u>Graduate</u>	<u>3.43</u>	<u>3.39</u>
Overall	3.37	3.28

ETHNIC DISTRIBUTION

Of the 159 students supported, 71 (89%) of the females and 58 (73%) of the males were identified as African American. One (1%) female and 7 (9%) males are Asian, while 2 (3%) females and 4 (5%) males are caucasian (Figure 4).

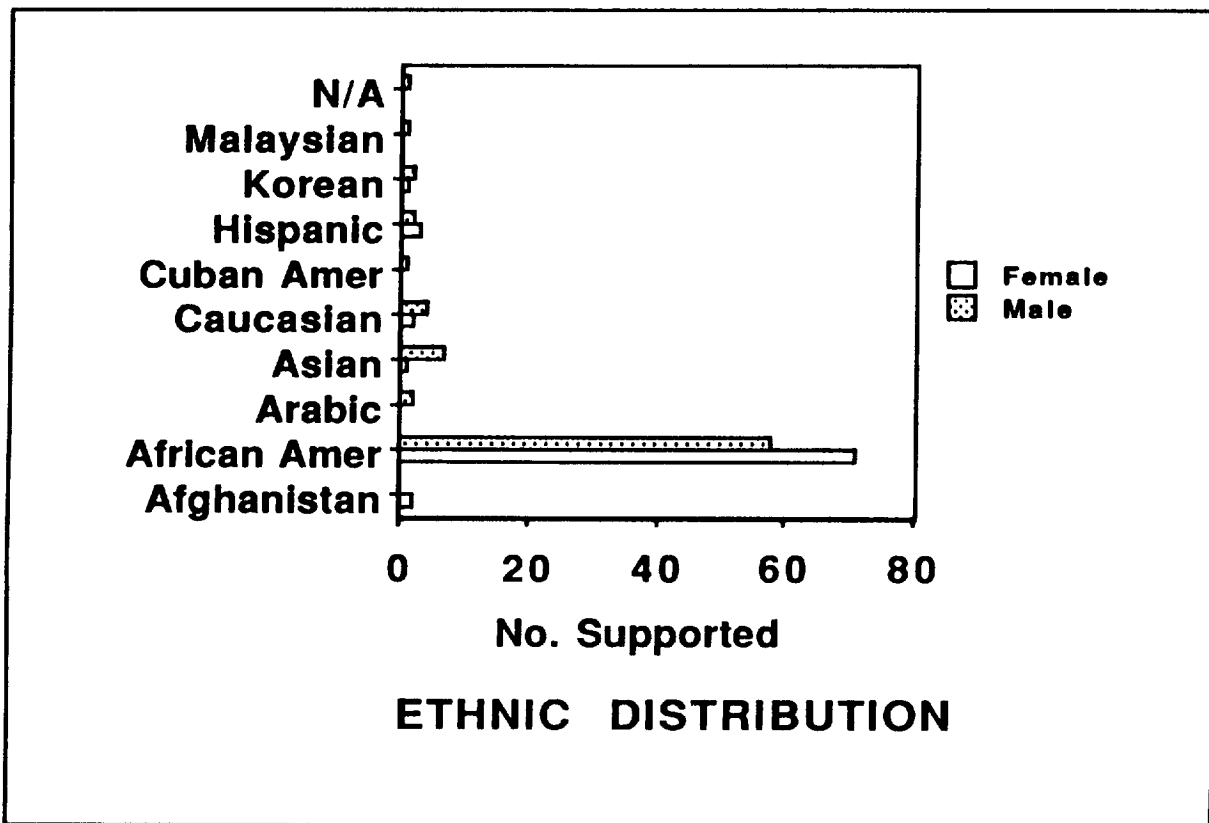


Figure 4

<u>Ethnicity</u>	<u>Female (%)</u>	<u>Male (%)</u>
Afghanistan	2 (2.5)	0 (0.0)
African American	71 (88.8)	58 (73.4)
Arabic	0 (0.0)	2 (2.5)
Asian	1 (1.3)	7 (8.9)
Caucasian	2 (2.5)	4 (5.1)
Cuban American	0 (0.0)	1 (1.3)
Hispanic	3 (3.8)	2 (2.5)
Korean	1 (1.3)	2 (2.5)
Malaysian Chinese	0 (0.0)	1 (1.3)
<u>Not specified</u>	<u>0 (0.0)</u>	<u>1 (1.3)</u>
TOTAL	80	79

NASA CENTER INTERACTION

The majority of the P.I.'s surveyed reported that their students had not visited a NASA center, either to conduct research or as an intern. Of the 159 students supported only 24 (30%) of the females and 25 (32%) of the males had visited a center. Those that did typically stayed for 2 weeks or less, and were reportedly on-site to use the Center's unique research facilities (Figure 5).

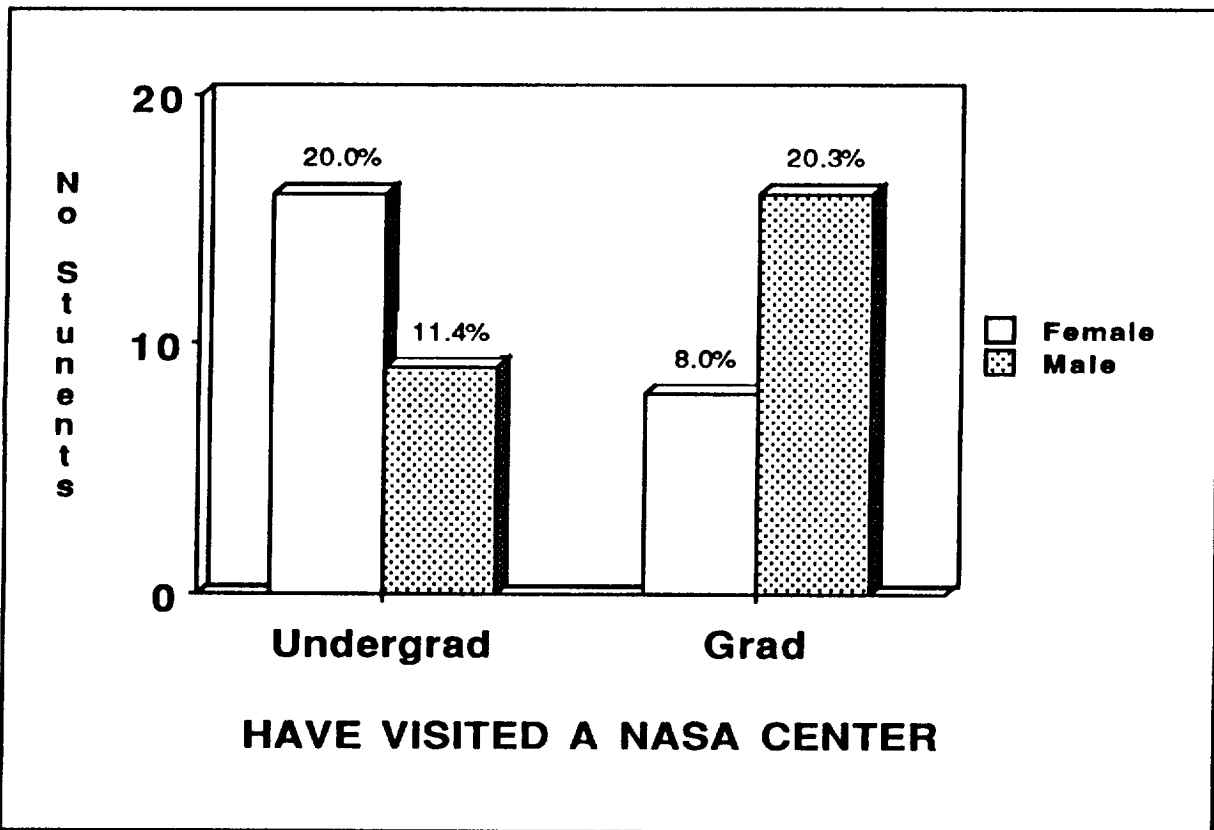


Figure 5

<u>NASA Visit</u>	<u>Female (%)</u>	<u>Male (%)</u>
Undergraduate	16 (20%)	9 (11.4%)
<u>Graduate</u>	<u>8 (10%)</u>	16 (20.3%)
Overall	24 (30%)	25 (31.7%)

SUMMARY

An explicit goal of NASA's HBCU/OMU program is to increase the number of minority students in science, engineering, and technology. The Langley Research Center is committed to increasing the size of the talent pool and to providing minority students with research experiences in areas of interest to NASA.

As a result of this survey it is clear that LaRC has taken an active role in accomplishing the Agency's goal for this program. It is also evident that LaRC is contributing significantly to the education of students in science and engineering disciplines. In Academic Year (AY) 1990, one hundred fifty-nine high-caliber minority students received support through the LaRC HBCU/OMU Program. The overwhelming majority of these students are African American and 51% are female. This ethnic and gender balance was achieved without sacrifice to either the quality of the research conducted or the research training the student received.

Although the results of this survey are overwhelmingly positive, the number of students who were reported to have visited a NASA facility was notably low. As a result of this finding, all P.I.'s will be required to increase the involvement of their students in on-site research. This new requirement will ensure that these students are given the maximum amount of exposure to the Center's culture and unique research facilities. It will also afford LaRC the opportunity to recruit some of the nation's best minority talent.

To ensure that the HBCU/OMU program continues to produce quality research for NASA, as well as minority students trained in disciplines of interest to the Agency, this survey should be administered again in AY 1991 to all P.I.'s in the program. A yearly survey will be useful not only for evaluating the program, but also for determining trends within the HBCU/OMU research community. Results of these surveys will be used to guide the Center's program and will be made available to NASA Headquarters and other NASA field Centers.

Appendix A
STUDENT SUPPORT SURVEY INSTRUMENT

NASA HBCU STUDENT SUPPORT SURVEY

Return Completed Form To: NASA Langley Research Center, University Affairs
Officer, Mail Stop 105A, Hampton, VA 23665-5225

I GRANT DATA

Principal Investigator(s)

Phone Number

NASA Grant No.

Start Date & End Date

Short Project Title

University

Amount Awarded

Category (Circle One) 1. Research 2. Training 3. Outreach 4. Special Event

II STUDENTS FUNDED (use continuation sheets as necessary)

	Student No. 1	Student No. 2	Student No. 3
Name			
Classification			
Major			
Graduation			
Date			
GPA			
Target			
Degree			
Gender			
Ethnicity			
Citizenship			
Stipend			
Amount			
NASA Visit*			

* Date student last visited a NASA Center or projected visit date (Internship).

III LIST PUBLICATIONS, PRESENTATIONS AND HONORS RESULTING FROM THIS GRANT.

STUDENTS FUNDED (continued)

	Student No. 4	Student No. 5	Student No. 6
Name	_____	_____	_____
Classification	_____	_____	_____
Major	_____	_____	_____
Graduation	_____	_____	_____
Date	_____	_____	_____
GPA	_____	_____	_____
Target	_____	_____	_____
Degree	_____	_____	_____
Gender	_____	_____	_____
Ethnicity	_____	_____	_____
Citizenship	_____	_____	_____
Stipend	_____	_____	_____
Amount	_____	_____	_____
NASA Visit*	_____	_____	_____

* Date student last visited a NASA Center or projected visit date (Internship).

	Student No. 7	Student No. 8	Student No. 9
Name	_____	_____	_____
Classification	_____	_____	_____
Major	_____	_____	_____
Graduation	_____	_____	_____
Date	_____	_____	_____
GPA	_____	_____	_____
Target	_____	_____	_____
Degree	_____	_____	_____
Gender	_____	_____	_____
Ethnicity	_____	_____	_____
Citizenship	_____	_____	_____
Stipend	_____	_____	_____
Amount	_____	_____	_____
NASA Visit	_____	_____	_____

Appendix B

NASA HBCU STUDENT SUPPORT SURVEY

Return Completed Form To: NASA Langley Research Center, University Affairs
Officer, Mail Stop 105A, Hampton, VA 23665-5225

1

Grant Data

Principal Investigator: Please print or type.

Co-P.I.'s:

First Name Middle Initial Last Name

First Name Middle Initial Last Name

NASA Grant Number:

Short Project Title:

Start & End Date:

Month/Day/Year Month/Day/Year

P.I. University Address

University

Department

Street Address

City State ZIP

Office Phone

Amount Awarded:

Category (check one):

☐ Research ☐ Training ☐ Outreach ☐ Special Event

2

Undergraduate Students Funded (duplicate as necessary):

Name

Student No. 1

Student No. 2

Classification

Major

Target Degree

G.P.A.

Graduation Date

Gender

Ethnicity

Citizenship

Stipend Amount

Last NASA Visit*

First, Middle Initial, Last Name

First, Middle Initial, Last Name

* Date student last visited a NASA Center or projected visit date (Internship).

3**Graduate Students Funded** (duplicate as necessary):

	Student No. 1	Student No. 2
Name	_____	_____
	First, Middle Initial, Last Name	First, Middle Initial, Last Name
Program	_____	_____
Major	_____	_____
Research Topic	_____	_____
	_____	_____
G.P.A.	_____	_____
Graduation Date	_____	_____
Gender	_____	_____
Ethnicity	_____	_____
Citizenship	_____	_____
Stipend Amount	_____	_____
Last NASA Visit*	_____	_____

* Date student last visited a NASA Center or projected visit date (Internship).

4**List publications, presentations, patents and honors resulting from this grant.**

5**Special Comments.**

Signature of Principal Investigator_____
Date